WATER, by Jiyani

Associated directly with food is water. These two are essential to life. Many men died because they did not know how nor where to look for water in apparently dry and arid regions.

WATER IS EVEN MORE ESSENTIAL THAN FOOD FOR SURVIVAL.

Thus one has to know how to find it and fast if one is to survive! We know today that you can go up to 60 days without solid food. You will be tormented by hunger, but you can not survive without water.

Many different forms of life are certain indicators of water in your vicinity. Bees MUST have water. Pigeons and all grain eaters MUST have water, but the flesh eaters such as the crow, hawk and eagle can go without water for a long time. By knowing something of the nature of insects, birds, animals and reptiles you can often find their hidden stores of precious water.

WATER

Since most common diseases in a survival situation are water-born, pollution of drinking water MUST BE RIGOROUSLY AVOIDED.

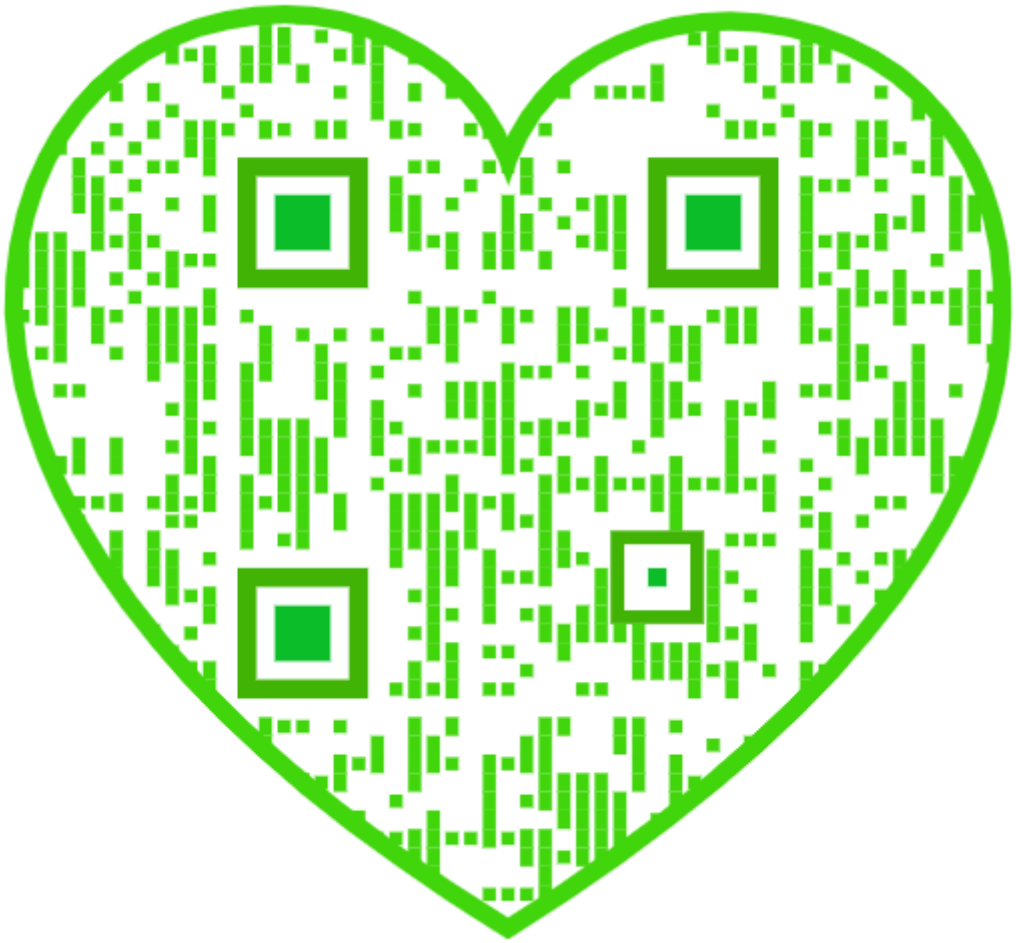
NEVER! NEVER! EVER TAKE THE SLIGHTEST UNNECESSARY RISK WITH DOUBTFUL WATER. Any one of us can generally get along a while longer without a drink. One drop of contaminated water can so sicken us that if nothing worse, we will become too weak to travel.

STRANGE COUNTRIES and CAUTION

When in strange country it is safer not to drink tap water. Buy and drink bottled water. The safest principle in any event is to assume ALL WATER to be IMPURE until proved otherwise, positively and recently!

PURITY

How can you tell if water is pure? Short of a laboratory we can not. Even where a mountain rill bubbles through sheer mountains, the putrefying carcass of an animal may



be lying a few yards upstream.

The folklore that any water a dog will drink is pure enough for his master is false. We have often seen dogs drink from toilets. The same notion for a horse is also false. Smell or [lack of it] is no guarantee. Sulfurous water stinks [horribly], yet it is safe to drink boiled or when not polluted.

The fact that natives may assert a water source is pure could indicate they have built up a degree of immunity. To their systems, the water is not tainted (polluted). Even the loneliest wild stream can be infected with this so called rabbit fever by wild animals such as muskrats and beavers.

Yet taking chances with drinking water in a well-settled community is in one sense a lot less dangerous than trying out water in a wilderness away from medical help.

MAKING SURE IT IS PURE

Water can be rid of germs by boiling. The exact time required to accomplish this depends on altitude, the nature of impurity and several other factors. A safe general rule is at least 10 minutes, longer is by no means a waste except for fuel.

If there is reasonable doubt water is contaminated, don't take chances even if in hurry. A great deal more inconvenience and delay can result from using just any water.

BOILING TAKES ONLY 10 MINUTES

Getting sick takes days even weeks before feeling better; sometimes it results in death. This applies to water actually consumed and with equal gravity, to any water entering the human body. For example, the water in which a toothbrush is dipped, water in which food and utensils are washed, and water used in cooking (except when kept at high enough temperatures for a sufficient time to insure purity) could all be sources for disease.

Boiled water tastes flat. Air and taste can be restored by pouring the cooled water back and forth between two buckets or by shaking it in a partially filled jar or canteen. If one is in hurry and has salt, just add a pinch of salt.

STAGNANT WATER and POLLUTED WATER

Both can be made safe to drink without equipment. If time permits, such water can be filtered through a sieve of charcoal. This will both clarify and to a large extent, purify the water. It is ALWAYS SAFER TO BOIL WATER BEFORE DRINKING AT

LEAST 10 MINUTES. Once boiled, swirl the water for a minute or so to give back its oxygen and taste.

MUDDY WATERS CLEANING METHODS

If the water is muddy, floating clay particles can be precipitated by a pinch of alum. This however requires at least 12 hours waiting and lots of wood!

If no artificial means such as iodine tablets are available, the polluted or dirty water can be filtered by straining through closely woven garments such as a felt hat or a pair of thick drill trousers.

TO CLEAN and PURIFY MUDDY WATER

1) Let it rest during 12 hours.

2) Let it circulate inside a bamboo stick measuring 1 metre long which you have filled with sand and the end is filled with grass.

3) Dump water in a cloth filled with sand which filters the mud.

4) Boil that water afterward for a minimum of 10 minutes.

TO MAKE A FILTER

Water can be cleared by filtration although this process will neither affect any dissolved minerals nor will it ensure purity.

Water is polluted by animal and mineral matter rather than by discoloring vegetable substances such as grass roots and dead leaves.

The first two can not be removed with any sureness by ordinary filtering. This filter is to clear water by straining it through solid material.

A wild filter can be made without too much trouble particularly in sandy areas by scooping a hole a few feet from the source of supply and letting the water seep into it.

HOT STONES METHOD

Polluted water can be sterilized by adding hot stones to the water in the filter. The water will soon boil becoming sterile and safe drink.

In areas where there is the likelihood of water being unsanitary (near cities or villages), it is always safer to boil before drinking or add a pinch of chloride of lime.

Water which is very muddy, dirty or stagnant can be clarified and sterilized through a good filter made from a pair of drill trousers with one leg turned inside out and put inside the other leg.

The cuff is tied and the upper part held open by 3 stakes driven well into the ground. Fill with the dirty water and then drop in the hot stones.

The water will filter through and MUST be caught by a container and poured pack until the dirt has been filtered and the water has boiled at least 10 minutes. Remember JUST MOISTENING [your lips with] polluted water will make you sick for days; it can even kill you.

WATER PURITY

Once you have found a water source, you have two old drinking rules to choose from, depending on how healthy you are, how cautious you are and where you are.

The first is, when doubt about water, purify it. The second is, a lively bubbling stream cleans itself in 30 feet of flowing over rocks and sands. Or as one old codger I know put it succinctly, referring to the same quality of stream bed, "If the cow's around the bend, the water's fit to drink."

Which rule you follow is up to you. We tend to use the second when in mountainous, wooded country. Our stomachs might not be cast iron, but they are pretty resistant to Montezuma's Revenge and La Turista. Yet as pollution increases we lean more and more to the first rule.

Boiling takes a lot of fuel and a lot of time to cool off but in dangerous regions it is better to drink a lot of tea rather than wait for the water to cool off. For Halazone, use one tablet per pint of water or two if in serious doubt. You MUST let it stand 1/2 hour or more to be safe to drink and it tastes funny like a water from a swimming pool.

Aerating the water by pouring it back and forth between two containers several times will eliminate most of the chlorine taste. This chemical is quite pungent; if you hold your breath while drinking it, you will hardly taste a thing.

SIMPLE CHEMICAL PURIFICATION

One can buy the chemicals at most sporting goods and drug stores. Since their purifying action depends upon the release of chlorine gas, the tablets should be fresh and the container kept tightly closed, its contents dry.

NO PURIFICATION OF WATER BY CHEMICAL MEANS IS AS SAFE AS BOILING.

Two tabs of Iodine will ordinarily make a quart of water safe for human consumption in 1/2 hour.

If the water is muddy or its integrity seems particularly questionable, it is good insurance to double at least the amount of Halazone and standing time to be sure.

Care MUST be taken with chemical purifiers to disinfect all points of contact with the container, so that the sterilized water will not be easily reinfected.

If a jar or canteen is being used together with Iodine, replace the cover loosely and wait 30 minutes so the tablets can dissolve. Then shake the contents thoroughly, allowing some of the water to spill out over the top and lips of the holder. Tighten the cover and leave it that way for the time required before using any of the water.

CHLORIDE OF LIME

Chlorine in some form is regarded as the most dependable disinfectant for drinking water. When introduced in proper quantities, it destroys any existing organisms. For as long as enough remains in the water, it prevents recurring contamination. It is better to err moderately on the side of over-dosage than not enough.

EMERGENCY CHLORINATING DONE IN 3 STEPS

1) Dissolve one heaping tablespoon of chloride of lime in 8 quarts of water.

2) Add one part of this solution to 100 parts of the water to be disinfected.

3) Wait at least 30 minutes before using. The stock solution MUST be kept tightly corked in a cool, dark place and even then, it should be frequently renewed.

Tincture of iodine can be used as an emergency purifier. A drop of this fresh antiseptic, mixed thoroughly with one quart of water in the same manner as the old Halazone pills

will generally make the water fit to drink in 30 minutes.

Both the amount and time may be doubled if this precaution seems warranted.

IODINE WATER PURIFICATION TABLETS

Chlorine-releasing compound can not be relied upon in Semi-Tropical and Tropical areas.

Water in those regions MUST be sterilized either by boiling or by iodine water purification tablets containing the active ingredient Tetraglycine Hydroperiodine, These measures have been adopted as standard by the armed services of the USA.

These tablets have been proved effective against all the common water-borne bacteria. Added to water each tablet frees 8 milligrams of iodine which act as a water purification factor. One tablet will purify one quart of water. These tablets too MUST be kept dry. The bottle MUST be recapped tightly after opening.

1) Add one tablet to a quart of water in container with cap.

2) Wait 3 minutes.

3) Shake water thoroughly, allowing a little water to leak out and disinfect the screw threads before tightening the cap.

4) Wait 10 minutes before drinking or adding beverage powders and if water is very cold, wait 20 minutes.

5) If water contains decaying vegetation or is murky and discolored, use 2 tablets for every one quart.

6) MAKE CERTAIN that the iodine disinfects any part of the container which will come in contact with your lips.

OTHER CHEMICALS TO STERILIZE WATER

1) JAVEL: Add 5 drops of Javel per 4.5 litres of water NEVER pass that dosage. Its drawback is that water tastes acidic.

2) "Permanganate de Potasse": Drop a piece of it in the water in a way that the water is HARDLY tainted and wait 1 hour before drinking.

3) In South America, people purify water ponds with copper sulphate 1 million parts to one part of water.

HOW TO RECOGNIZE POISONOUS WATER HOLES

A few water holes as in the southwestern deserts of North America contain dissolved poison such as arsenic.

Once can recognize these easily, partly because of bones of unwary animals scattered about, but mainly because green vegetation will be conspicuously absent. Avoid any water hole without green plants.

POISONED RIVER

While fighting the Boers, Baden Powel came across this problem, and resolved it this way, having learned that the water had been poisoned.

He simply dug a hole at 9 feet from the river bank and let the water seep through thus eliminating the poison. However the hole MUST be dug deeper than the river bed.

HARD WATER

If the area traveled has hard water to which we are not accustomed, severe digestive upsets may result if, while getting used to it, we absorb more than small amounts at any one time. Boiling may be of some help, but that is all one can do, until one gets used to it.

A WAY TO SWEETEN WATER

If you are camping by a swamp or pond with an unpleasant odor, you will want to sweeten and purify the water in a single operation.

Just drop several bits of charred hardwood from the campfire into the boiling pot. 10 or 15 minutes simmering will do the job.

Then you can skim away most of the foreign matter and strain the water through a clean cloth or if time permits, merely allow it to settle.

WATER HAZARDS and SICKNESS

Diseases from water make one of the greatest threat to survival, if not THE greatest, immediately following injuries, cold and man! Among them we find: Dysentery, Cholera, Typhoid, Douves.

DYSENTERY

This sickness causes general diarrhea, painful and of long duration with bloody stools and weakness.

If you think you suffer it, eat frequently and drink, if possible, coconut milk and boiled water. As for coconut milk being a laxative, drink only a small amount. Boiled rice is strongly recommended as food during this illness.

CHOLERA AND TYPHOID

Even with vaccine, you are vulnerable to these diseases if proper care isn't taken of water drinking habits.

DOUVES

They abound in stagnant and polluted water especially in the Tropics. When you swallow them, they infiltrate the blood causing severe sickness and often death. These parasite worms penetrate the body even through the skin. Don't walk or bathe in contaminated waters.

Nowhere does the addition of liquor to ice or water rid either of germs. (Germs keep well in ice; they don't die).

LEECHES and HOW TO GET RID OF THEM

The small leeches abound most particularly in water streams of Africa. When swallowed, they cling to throat and nose passages. They suck the blood and cause wounds. These parasites move and each time they do, they cause new open wounds which leads the way to infection.

Clean your nose as quickly as possible by sniffing very salted water or remove the

leeches with improvised tweezers or with the heat from a cigarette. Another old jungle trick is to rub salt on them which will make them leave.

WHERE TO FIND WATER?

One is ALWAYS learning from nature. Several principles serve to aid; water flows downhill. So we are not surprised to find water near the tops of mountains indicated by a lush area or a thread of green "verdancy" coming down a slope.

Water is also prone to lie near the base of hills where it can often be recognized by the density of vegetation. When country is flat and open, long meandering tangles of such brush and shrubs as alder and willow will tell us their tale.

WHEN TO FOLLOW GAME TRAIL

Those trails often indicate water presence. A usually reliable indication is a marked increase in the deepening and widening of the trail. So do follow these trails. If traveling in the North America, you will come to recognize that such trails commonly mean a muskeg (bog) lies ahead and that the easiest procedure will be the following an animal’s path around it.

DESERT WATER

Water seeks the lowest level available and in the desert, these may be underground. If you see hills, head toward them, for the likeliest place to find water is at their base.

Perhaps you have come across the thin shallow bed of a stream. Even though it is dry, water may lie beneath the surface. Hunt for a low place in the bed and dig. The same procedure applies in the case of dry lake bottoms. The presence of any water will soon be indicated by damp sand.

Game trails in desert country usually lead to water. Follow them downhill if the land so slopes that you can do this with certainty. Otherwise scout around till you can MAKE SURE which direction the paths have become more frequented; this will be the way to go.

If you happen upon a palm, you can depend on water being at hand generally within several feet of the base of the tree. Reed grass is also a sound sign that moisture is near.

However, in general, it is futile to search for water near desert plants, for this one has

already taken it. Instead, use the plant roots which you dig, pull and section off. For cactus, cut off the head and avoid the milk.

In the Arizona desert there is a cactus in a bottle shape which contains near 7 quarts of water but only in Arizona. With a good knife it will take nearly 40 minutes of hard work to cut the very tough and prickly skin.

The water is in the plant, not in the soil. The only danger comes from milky sap as seen from cactus in African desert. The Barrel Cactus is the milky exception.

One may not find Barrel Cactus if in the wrong region of the desert. If you find one, to get the juice, cut off sections of that Cactus and be wary of spines. Mash them in a container.

You can drink any resulting fluid on the spot or pour it into a second container as often as needed. If you have no utensils, you can mash segments of the cactus one by one and suck the pulp.

DESERT WATER PART 2

1) Where you see damp soil, dig in surface.

2) One can find water just under the surface of a dry river. The water goes down at the lowest point of the river bed, in the exterior part of the elbow of its bed. Digging under the concave bank of the exterior side of the river curve is the place to find water, whereas the convex side is nil. Help the water to flow by digging small holes.

3) Look behind rocks, in trenches and small ditches, on the flank of canyon or under the sharp edge of cliff and maybe you will find natural reservoirs. Often in those places, the soil is made of solid rock or very hard soil well packed that collects water. If you can't find those clues, search for water where the animals leave their traces.

4) In desert, REMEMBER to observe the flight of birds particularly at dawn and dusk. The birds glide and hover around these marshes. Go there every day, parrots and pigeons are rarely very far from it.

5) In the GOBI desert, don't count on plants to quench your thirst. In the SAHARA, the Wild Gourd or Pumpkin can quench thirst. The pulp of the Barrel Cactus in USA is safe and will give 1 litre of milky fluid. (This is the exception to the milky rule) but it is tough to get to it, with a good knife you cut the upper part. Use this cactus as last resort.

6) The roots of certain desert plants are found very near the surface soil. The Australian

Water Tree, the Desert Oak and the Blood Wood are examples.

Remove these roots and cut them or better break them in length of 60-100cm. Remove the skin and suck the water contained in it.

7) The Madagascar Traveling Tree of Western Africa and the Australian and African Baobab are among the plants capable of supplying water.

Don't attach too much importance about stories of contaminated wells. The acid taste of certain salty or alkaline waters rich in magnesium are the cause.

Desert waters by the nature of their surge are generally better filtered and clearer than your city water. Yet, better boil that water or add Iodine or Halazone pills especially in native villages or near inhabited places.

DESERT SURVIVAL - WALKING

In the Desert, adapt yourself to it, rather than try fighting it.

Desert natives refuse to do any violent effort during the hottest hours of the day and as the animals do; they drink and drink as soon as possible.

It has been registered desert walking of 140 to 350 miles between 10 to 20 days; while walking only at night and with only a little water from plane crashed survivors.

Here is another illustration to prove the point. An American called Rodger Jones, in August 1953 was stranded on a road in the Great Salt Lake Desert, when an axle of his car broke down.

As a former marine he had taken a short survival course and he did the right think, he lay down in the shadow of his car (outside) and slept through the hottest part of the day.

Around 6pm when the sun had lost its full impact, though the temperature was still around 95; he set off along the road. He knew there were steel water tanks for tourist at regular intervals.

Twice that evening he came to one of those tanks painted bright red and drank as much as he could, also filling up his water bottle. Wherever he found any shade he stopped for a rest.

Every so often he collected large stones and laid them out on the road to spell the word

HELP with an arrow showing the direction he was walking in.

The next day a car driver saw one of those signs, at once followed the arrow and caught up with Jones after a 4 hours drive.

He was resting in the shade of a rock and his condition was excellent despite a midday heat of 110 F.

Another family who also got stranded did survive by laying close to the car shadow, applying lipstick to the blisters and swollen lips of the husband and children and covering everyone cheeks and arms with rouge.

Discovering that the ground was cooler a few inches below the surface, she and her husband buried the children up to the neck in sand and applied sand to the children's faces, then they did the same for themselves.

In most deserts the temperature a foot below the surface is less than 72 F and on hot summer day; it may be 18 degree cooler than at the surface directly above.

Using urine collected earlier during the day, they dipped some bit of clothing in the can and press them on children's face, the smell was unpleasant, but the moisture was refreshing cool.

They were later rescued in good health, but if they had decide to walk off in bright day, they would have been either dead or in very bad conditions. It pays to learn the tricks of survival.

DESERT TRAVEL HINTS

TRAVEL AT NIGHT! AS MUCH AS POSSIBLE!

1) Cover yourself as much as possible. Clothing stops sweat evaporating too quickly and helps you benefit from its cooling effect. If you remove your shirt, you will feel more at ease but you'll also sweat much more beside risking sunburn.

2) Keep your clothing on. You will walk further if you don't sweat too much.

3) Unless you have a lot water, don't waste it washing.

4) When drinking, don't swallow big gulps in one shot. Drink small quantities. If low in water, then only dampen your lips.

5) Keeping a few small pebbles in your mouth will ease your thirst, breathe through the nose and don't talk.

6) Absorb salt only with water and only if you have a lot of water.

7) Drink as often and as much as you can; the saving of water will not get you much farther, yet don't waste it.

8) When extremely thirsty any liquid is tempting but don't drink any alcohol. Aside from its effects, it only dehydrates the body..

9) Urine is harmful and only increases thirst.

10) Smoking dehydrates your body and heightens the need to drink.

Sluggishness of the digestive system is a natural consequence of going without normal amounts of water and nourishment.

This condition need not cause concern and will re-adjust itself when normal conditions resume. So don't take any laxative under such conditions for it depletes the body of further fluid.

DEW

Dew which settles after cold nights in many stretches of deserts has also been a life saver. Survivors have mopped it from the metal of their wrecked plane or collected it in tarpaulins.

Dew must be collected before the sunrise, for it evaporates quickly. An abundant dew can give a little more than 1 litre of water/hour. Thirsty Bedouins sometimes dig up cool stones just before sunrise and wait till dew settles on them, then lick the stones dry.

In many desert regions according to Israeli scientist Shmuel Duvdevani dew falls in a quantity which would amount to 25 inches in a year.

During the war one of the strangest source of water were the wreck of burned out or shot up jeeps and tanks and trucks. Airmen after crash walked 20 miles a day filling up their water bottles regularly from the radiator of such vehicles. (This is a good idea unless the radiator contains glycol ether which is anti-freeze, a toxic substance.)

BEDOUINS WATER EXPERTS

Survival experts have taken great interest in the methods of Bedouins with their amazing sixth sense which again and again leads them to sources of water.

Morning and evenings for instance they listen to the twittering of birds to locate where the birds get their drink. They also find water holes by watching the direction in which the birds are flying or by following animals trails. Flocks of birds circling over one spot, excepting vultures, usually indicate a drinking place in the desert.

Of course the water there is not ALWAYS pure said a survivor who found such a water hole. There was such a stench of sh** that he was almost sick. But his thirst was greater than his disgust, he has no iodine to disinfect water nor anything to make a fire with and boil it, but he drank it and was none the worse. I should point out, that he should have dug a hole near by (9 FEET) and let the water seep through thus safer in some ways. 9 FEET would also get rid of water contaminated by radiation.

Dense clouds of flies swarming over a place in the desert show Bedouins where there was water only a short while before and they ALMOST ALWAYS FIND IT WORTH DIGGING THERE.

Bedouins also have discovered fairly large supplies of water either on the edge of a desert very near salt lakes or in the middle of deep dune valleys. Rain water collects there, seeps into the ground and settles between different layers of soil.

If while digging they hit upon wet sand with a dry layer underneath it, it is a sign that the water has already drained off farther downhill or evaporated in which case they start digging again in a lower lying spot.

Almost every desert has wadis, where sometimes water is still found only a few feet under a surface which is apparently bone dry. Of course there is often no more than a layer of mud left, but thirsty people have pressed it into a cloth and drunk the water unharmed. Those who died from it never told their stories.

AFRICAN BUSHMEN

They dig a small hole in the mud, stick a suction pipe into it, then suck the moisture out of the ground drop by drop. A grass filter stops any sand getting into the bottom of the pipe. Water not needed at once is stored in blown-out ostrich eggs in which quite a large amount of liquid can be carried.

If water taste very soapy or salty it may be poisonous. In the GOBI desert for instance, there are springs which contain alkali. In Arizona several springs contain arsenic and a

spring in Sahara contains so much chlorine that it corrodes clothes.

WHERE TO FIND WATER IN ROCKY SOILS

Water easily disintegrates lime stone and digs caverns which you will find springs and water sweating.

LAVA ETC.

Because of its porosity, lava retains much water, so you will find springs along valleys which crosses old lava flows.

When a dry canyon cuts across a sandstone or gritstone layer, there is water which sweats on its walls.

In region rich in granite, dig a hole in the green grass and you will discover water coming up.

IN SOFT SOILS

Water is ordinarily more abundant and easier to discover in soft than in rocky soils. The phreatic sheets often come to surface in valleys and slopes.

The springs and sweating are found in the high level line of the river waters after those have retracted away.

BEFORE DIGGING TO FIND WATER, TRY TO DISCOVER THE SIGNS WHICH INDICATES ITS PRESENCE. The bottom of a valley, at the foot of a sharp slope, a corner of vegetation which has sheltered a spring during rainy season, a low forest and sea shores are among many places where the hydrostatic level lies under the surface.

There is no need to dig deeply in order to find water. Above the level of the phreatic sheet, there are small streams and ponds. However, those waters are contaminated and dangerous even when far away from any civilization. Ex. Springs below towns.

ON MOUNTAINS

Dig in dry spring beds, for water often hides itself under the gravel. Mountain slopes usually hide springs at their feet.

OTHER SOURCES OF SUPPLY

Creosote plants, Willows, Elder Berry, Salted Herbs grow only where water is near surface.

By a starry night, one can with a handkerchief mop up and gather up to 1 quart of water per hour from damp soils where you see flies.

INSECTS, BIRDS AND ANIMALS INDICATORS OF WATER

Bees in an area are a certain sign of water. Rarely will you find a hive of wild bees more than 3 or 4 miles from fresh water. A bee flies a mile in 12 minutes.

So you can be sure if you see bees that you are not far from fresh water, but you will probably have to look for further indications before you find the water supply.

ANTS

Many ants need water, so if you see a steady column of small black ants climbing a tree trunk and disappearing into a hole in a crotch, it is highly probable that you fill find a hidden reservoir of fresh water stored away there. This can be proved by dipping a long straw or thin stick down the hole into which the ants are going.

If wet, then water is there. To get the water, do not on ANY account chop into the tree. If the hole is very small enlarge it with your knife-point at the top. Make a mop by tying grass or a rag to a stick. Dip the mop into the water and squeeze into a container.

Another method is to take a long hollow straw and suck the water you need from the reservoir. These natural tree reservoirs are VERY COMMON in Dry areas, and are often kept full by the dew which condensing on the upper branches of the tree, trickles down into the crotch and into the reservoir inside the tree.

Water reservoirs are very common in the She-Oaks (casuarinas) and many species of Wattle.

MASON FLIES

Theses large, hornet-like creatures are a certain indicator of water. If you see a mason fly building in an area, you can be sure that you are within a few hundred yards of a

soak of wet earth.

Search around carefully and you will see the mason fly hover and then suddenly drop to the ground. If you examine the place where she landed, you will find the soil is moist and that she is busy rolling a pellet of mud for her building. By digging down a few inches or at most, a couple of feet, you will surely find a spring and clear, fresh, drinkable water.

BIRD INDICATORS FINCHES

All the finches are grain-eaters and water drinkers. In the dry belts, you may see a colony of finches and you can be certain that you are near water, probably a hidden spring or permanent soak.

WILD PIGEONS

They are a reliable indicator of water. Being grain and seed eaters, they spend the day out on the plains feeding and then with the approach of dusk, make for a water hole, drink their fill and fly slowly back to their nest. Their manner of flying will tell you the direction of their water supply.

If they are flying low and swift, they are flying to water but if their flight is from tree to tree and slow, they are returning from drinking their fill. Being heavy with water they are vulnerable to birds of prey.

GRAIN EATERS

All the grain eaters and most of the ground feeders require water, so if you see their tracks on the ground, you can be fairly certain there is water within a few miles of your location. An exception are parrots and cockatoos which are not seen as reliable indicators of water.

CARNIVORES BIRDS

Being flesh eaters, they get most of the moisture they need from the flesh of their prey thus not reliable water-drinkers. Nor should you regard the water living birds as indicators of fresh or drinkable water.

MAMMALS

Nearly all mammals need water at regular intervals to keep alive. Even the flesh eaters MUST drink, but animals can travel long distances between drinks and therefore, unless

there is a regular trail, you can not be sure of finding water where you see animal trails. This is a general rule.

However, certain animals NEVER travel far from water. Ex. A fresh track of wild pigs is one sign that there is water near by. Also fresh tracks of rooster and most of the grazing animals, whose habit is to drink regularly at dawn or dusk. In general, water is found by following these trails downhill.

FROGS ETC.

Frogs, salamanders, weevil charancons ALWAYS look for a damp place to rest and usually, if we dig under them, you will find water points, even springs.

REPTILES

Most of the land-living reptiles are independent to a very large extent on water. They get what they need from dew and the flesh of their prey and thus, not an indicator of water.

WATER FROM VEGETABLE SOURCES

The roots and branches of many trees contain sufficient free-flowing fluid to relieve thirst. This can be collected by breaking into 3 feet lengths the roots or branches and standing these in a trough of bark into which the collected fluid will drain to the container.

In some plants the amount of stored water is truly unbelievable. The water will gush out literally when the plant is cut.

WARNING!:

THESE VEGETABLE "DRINKING-WATERS" CAN NOT BE KEPT FOR MORE THAN 24 HOURS.

The fluid starts to ferment or go bad if stored and might be dangerous to drink if in this condition. The nature of the plant if judged by the properties of its foliage is no guide for the drinkability of the fluid which is its sap.

For example, the Eucalyptus whose leaves are heavily impregnated with oils of Eucalyptus and in many cases poisonous to human beings, contain a drinkable fluid, easily collected from the branches or the roots. The fluid is entirely free from the

essential oils and with no taint of the Eucalyptus. Its roots measure from 12 to 25 metres, crawling under low depth. Pull them off, remove the bark, and the sap will sweat at both ends which you have put containers.

The Liana or Monkey ropes found in tropical regions are an example of a prolific abundant source of water.

There are certain precautions and a few danger signs with regard to vegetable fluids. If the fluid is milky or red or colored in any way it MUST be regarded as DANGEROUS, not only to drink but also to the skin. Many of the milky saps except those of the ficus family which contain latex or a natural rubber are EXTREMELY POISONOUS.

One exception known = Barrel cactus USA.

The milky sap of many weeds can poison the skin and form bad sores and if allowed to get into the eyes cause blindness. With ALL vegetable sources of fluid even though the water itself is clear, taste it first and if quite or almost tasteless or flavorless, it is safe to drink.

For vegetable sources of water in arid areas, the best volume is generally obtained by scratching up the surface roots. They are discovered close to the ground and if cut close to the tree, may be lifted and pulled, each root yielding from 10 to 20 feet. These MUST be cut in 3-4 feet lengths for draining.

Many persons who have tried to obtain drinking water from vegetable sources failed to get the precious liquid to flow just because they did not break or cut the stalk or root into lengths. UNLESS THESE BREAKS ARE MADE, THE FLUID CAN NOT FLOW and the conclusion is that the root, branch or vine is without moisture.

In general water is more plentiful from plants in gullies than on ridges. And the flow is wasted if the roots are broken into sections and NOT CUT. Cutting tends to bruise and seal the capillary channels

DEW COLLECTION

In barren areas where there are no trees, it may be possible to collect sufficient moisture from the grass in the form of dew to preserve life.

One of the easiest way is to tie rags or tufts of fine grass round the ankles and walk through the herbage before the sun has risen, squeezing the moisture collected by the rags into a container.

Many explorers saved their life that way. Pig-face and Ice plant and Pig weed contain large proportions of drinkable moisture.

WATER ON SEA COAST

FRESH WATER CAN ALWAYS BE FOUND ALONG THE SEA COAST BY DIGGING BEHIND THE WIND BLOWN SAND HILLS WHICH BACK MOST OCEAN BEACHES! These sand hills trap rain water and it floats on top of the heavier salt water which filters in from the ocean. Sand hill wells MUST be only deep enough to uncover the top inch or 2 or water.

SAND WELLS

If dug deeper, salt water will be encountered and the water from the well will be undrinkable. It will be noticed too that the water in those wells rises and falls slightly with the tides.

THESE SAND WELLS ARE COMPLETELY RELIABLE SOURCES OF WATER ALL OVER THE WORLD.

When digging, it is necessary to rivet the sides of the well with brushwood, otherwise the sand will fall into the well. On coastal areas where cliffs fall into a sea, careful search along the lower edges of the cliff will generally disclose soaks or small springs. These, in general, follow a fault in the rock formation and frequently are evident by a lush growth of ferns and mosses.

I personally found that near the cliff, at the bottom of them where you find fallen rocks meeting the sand beach, if you dig there yet not too close to those rocks, you will find water about 1 foot down. It is a perpetual source of water, as much as you want, even for 20 persons. It keeps filling up every day.

MAKE SURE you rivet the side also and just cover the hole with some planks or drift board and mark it well so that it keeps animals away, for sand will cover it fast after a while from the nearby sand hill.

I know about them I survived on them for 5 months on a deserted island. Brion Island. QC.

SEA! MOISTURE FROM FISH FLESH

Another source of liquid sufficient to sustain life at sea, when no fresh water is available, comes from flesh of the fish.

The fish are diced and the small portions of flesh are placed in a piece of cotton cloth and the moisture wrung out. This moisture is not excessively salty and can sustain life for a long period.

CONDENSING SALT WATER

It is possible to condense sea water without equipment and obtain sufficient fresh water.

A coolamon is made or alternatively a hole is scraped in the ground and lined. The salt water is put into this hole. A fire is built and stones are put into it to heat up. These, when hot, are put into the salted water which soon boils and then water vapor is soaked up by a towel or thick mat of cloth.

In time, this will become literally saturated and may be wrung out, yielding a fair quantity of fresh drinkable water. Once the cloth is cool the collection of water vapor is fairly rapid.

MOISTURE CONDENSATION IN ARID AREAS

This still produces about 50% more water between 8pm.. and 8 am. than during the day, but it still works day and night. Don’t depend to drink this water immediately for it takes 24 hours before collecting 1 quart (1 litre) of water sometimes.

A simple still for water condensation in arid areas can be made from a piece of light plastic sheeting about 4 feet (122cm) square. A clean garbage bag which has been fully cut and open will do. A hole is dug in the ground in a sunny position. The hole should be about 3 feet (1 meter) across and 15" to 18" (38cm - 46cm) deep or deeper if possible.

The site should be preferably in a moist ground, a depression in a creek bed is ideal if one can be found. If green material such as shrubs or succulent herbage is nearby, the hole should be lined with this and the materials packed down. It may be necessary to weigh down the material with a few flat stones. In the centre of the hole and in the deepest part, a container is placed to catch the moisture from condensation.

Lay the sheet of plastic across and covering the hole using some of the earth scooped from the hole to seal the edges lightly.

Place a stone in the centre of the upper side of the plastic sheet above the approximate centre of the water container to weigh it down to just over the container below.

Moisture in the soil and in the greenery placed in the hole will be drawn off by the heat of the sun and condense on the underside of the plastic. The condensed moisture will collect into droplets, coalesce and trickle down the underside to the lowest point where it drops off into the container.

If the underside of the plastic sheet is slightly roughened with fine sandpaper or similar fine abrasive such as a piece of finely grained stone, the droplets will coalesce and run off more cleanly than if the underside is absolutely smooth.

Body waste such as urine, waste food, moist tea leaves etc. can be put into the hole. The pure moisture only is condensed. From 1 - 4 pints of water a day can be collected by this method.

If the stay in the area is likely to be of some duration the top few inches of the hole can be removed and fresh green material replaced and the still will continue to work when this is done.

FRESH STILL SITES MAY BE NECESSARY EVERY 2ND OR 3RD DAY.

This still can also bring you food! Since water under the plastic will attract snakes and small games which will crawl under the still cone but can not go out.

This effective method was first used by the Water Conservation Laboratory in Arizona.

It is not necessary, but very useful, if you have a flexible plastic tube about 1.5m long which will permit you to drink from the bottom bucket without having to remove it and stopping the recuperation.

OTHER WAYS TO FIND WATER

EXPERIENCE WITH A OIL LAMP

At night, dig a hole 2 feet deep, cover the bottom with very dry wood and place an oil lamp which has very little oil (just so the wick is imbibed), light it up and place it on the wood floor.

Cover up the hole with branches and wait till morning to see if your oil lamp is still burning. If so, then there is water at a certain depth. Dig and you shall find it. Why is that?

Because the dampness of the under water sheet increases the air condensation furnishing more oxygen and thus, makes the oil last longer which keeps the flame to your oil lamp. If however it has died, then there is a lack of dampness. The oil alone has not sufficed for the night's duration having burned faster than the air which was too dry.

WATER FROM A LANTERN - PART 2

If all other means of getting water have been exhausted, any metal container and lighted lantern may be used to obtain water.

Remove one end of the container and submerge the closed end in a foot or more of salt water. Place the lighted lantern inside the container on the bottom. Cover the open top, allowing only enough air to enter to keep the lantern burning. The heat will cause moisture to form on the inside container. This can be soaked up with a rag and squeezed into a cup.

EXPERIENCE WITH A WOOL BALL

Do as for the oil lamp but replace it by a wool ball. Put a very dry wool ball on the dry wood and cover the hole. The following morning look at your ball and press it strongly, the quantity of water will tell you if its worth digging.

RAIN WATER

ALWAYS SAFE TO DRINK and easy to collect with any tarp but unfortunately there are 3 exceptions. A chemical, atomic or bacteriological warfare would render this water unsafe unless filtered and boiled. Man has created its own worst problems.

WATER IN COLD CLIMATE

Snow: Clean snow can be eaten any time one is thirsty. The only precaution is to treat it like ice cream and not to put down too much at once when overheated or chilled. Rather, let it melt down in your mouth. It is better not to eat snow when extremely cold, for it has the tendency to dehydrate the body and provoke chill. Let it melt slowly into your mouth in small quantity

One of the most pleasant wilderness desserts is ice cream made with snow. Pour milk into a container, add sugar and some flavor such as chocolate and stir in preferably fresh light snow till taste and texture are satisfactory.

Snow drawback is that a considerable amount is needed to equal a glass of water. Packed snow gives more water of course, ice even more.

Particular care has to be taken when melting snow to not burn the pot. Melt the snow until the bottom of the pot is safely covered with several inches of water before adding more snow. Use any tool to pack the snow as it melts to avoid the bottom of your pot drying up and burning. This nuisance is compensated for by the fact that snowfall makes water readily available throughout wilderness.

One needs a lot more water in cold weather than one expects, because the kidneys have to take over much of the process of elimination otherwise done by the sweat glands.

ICE and FRESH WATER

This is the water supply of many an Arctic establishment but the tasks of cutting and melting is sufficiently inconvenient that when it is feasible, most prefer to chop or chisel holes in the lake or stream to get water.

Such holes MUST be covered to discourage their freezing. Also it is the preferable method since you waste no fuel. To obtain water you need twice the amount of fuel to melt snow than if you melt ice for the same quantity of water.

To break ice, it is better to use a pointed tool. First, hit a few light strokes to create a split then a hard blow to break an ice piece the length desired. On a great lake or long river, cut toward an already existing split to avoid making only small bits.

If one wants to dig a hole in a lake or river to obtain water, one MUST be careful doing it to avoid splashing.

First, start to axe all around your hole but make very sure not to puncture the ice all the way to the water, until your hole is deep and wide enough for your bucket. Then and only then, once you are near water on all sides, give a sharp blow to break the ice completely. If you don't do this, the water will seep into the hole and you will get dangerously wet while trying to enlarge it. However, as far as purity is concerned, ice and the water obtained from melting ice differ in no respect from the water originally frozen.

SALT WATER ICE BECOMES FRESH

The soundest reasoning leads to the [worst] conclusions when the premises are false. We are certain that the ocean is salt, so it is logical than that the ice of salt water MUST also be salted

Wrong! It so happens as Dr. V. Stefansson notes, the sea ice becomes fresh during the period intervening between its formation and the end of the first summer thereafter.

If, during freezing weather, you are ever in a position where you have no other source of water but salted water, you'll want to catch small amounts of the available brine and allow ice to form in it. The slush and any remaining liquid should then be removed.

The ice you'll find fresh enough to use in emergency. Ocean ice loses its salt so rapidly that ice over 1 year old is nearly fresh.

And ice formed 2 or more years old can not be distinguished as far as taste goes from river ice unless waves have been breaking over it recently or spray has been dousing it.

Melted hollow otherwise will usually be found to contain ample fresh water. Salted ice is grey and opaque whereas unsalted ice is bluish and crystal colored.

FINDING DRINKING WATER ON OCEAN

Rain water will often furnish drinking water at sea. When it starts to fall, the precaution is immediately taken to let it wash any accumulated salt from everything that is to be used for catching it and storing it.

Dew is heavy enough is some areas to merit being caught in a sail or tarpaulin stretched with sufficient sag to allow any condensation to collect.

One may be out of sight of land and yet so near the mouth of some great river that even far at sea the water will still be fresh.

OBTAINING WATER FROM FISH

The proportion of water in fish is so high that at sea, except when large enough emergency water supplies can be secured from ice or rain, fish are the most dependable source.

They can be caught in many different ways and in some waters many fish will even leap freely aboard at night especially if a light is shown to attract them. Most sea life can be used although crabs and sharks are excessively salty.

Sea snakes which, unlike eels, have no scales are edible but have poisonous fangs. They are 10 times worse than the land ones.

Unless the fish you catch has ordinary scales and looks like most fish you are used to seeing, a good rule, especially in warm waters, is to leave it alone. For example, Jelly Fish should neither be handled nor used.

WATER FROM FISH

Water can be obtained from freshly caught fish in several different ways.

The most fundamental method is to divide the fish into small portions and chew each of these thoroughly spitting all solid matter before going to the next morsel. The fish can also be sectioned and twisted within a cloth, the freed juice is either sucked or caught.

One primitive way of dealing with a large fish is to hack holes in its side and allow moisture from the lymphatic vessels to ooze into these. If you like the juice of raw clams or oysters you are apt to find all this surprisingly pleasant. You'll be able to satisfy thirst as long as you can catch sufficient fish for your needs.

REMEMBER, it will take you several hours to obtain 1/2 litre of this liquid, so be patient while squeezing the fish.

BODY WATER PRESERVATION

Even when you have found water, you have won only half the battle. You MUST make this reserve last and for that to happen you MUST not sweat or do so as little as possible.

Your body exits heat either by evaporation or sweating. As soon as the body fluid volume lowers, sweating diminishes, the body temperature rises and you exhaust quickly.

An increase of only 6 degrees in your normal body temperature is of lethal consequences. Even though you seem to be less hot when you remove clothing; you also quickly lose your organic fluid that way. If you stay clothed; you will prevent the heat to penetrate and this will also slow down the evaporation.

YOU MUST BOTH DRINK AND AVOID SWEATING TO AVOID DEHYDRATION.

Experience proves a man in normal working condition spends 3,000 calories a day and

that a man in good health can subsist for a long time on only 500 calories per day without bad effects on his organism.

Of course in condition of great fatigue or cold exposure, one has to eat more to maintain his body temperature. Water is still much more necessary than food. One generally needs at least 1/2 pint (2 cups) per day minimum. Once exposed to desert heat, one needs a minimum of 3.8 litres (1 gallon) of water per day.

This will enable you to cover a distance of 30km (18.64 miles) as long as the sweating is well-controlled and the moving is done at night. During the day, it would give you 15km (9.32 miles) distance on the same amount of water.

WHAT TO DO IF WATER IS SCARCE

If you have ample water at the moment but may have little or none later, the soundest procedure is to drink as much as we reasonably can before quitting the source of supply. Fill up before abandoning a ship or a plane.

If in dry country; drink a lot while and just before leaving the water hole unless there are extenuating circumstances. Every effort MUST be made to take adequate water with you when leaving what may be an isolated supply. Water comes first.

We repeat that an unbelievable amount of water is exuded through the skin's pores and the rate of perspiration is markedly increased both by heat and by exertion. The need for water intake can be much lessened by your keeping as quiet as possible and as comfortably cool as one can.

Keeping the clothing wet will help at sea in hot weather although it should be rinsed in the latter part of the afternoon to prevent collecting too much salt. Allow to dry out before evening if the nights are chilly.

If in desert without sufficient water and obliged to depend on your own resources to get out, your best chance will be to stay as relaxed and cool as possible during the torrid hours. Travel at dusk, night and dawn.

If on flat shelterless desert, one can ALWAYS scoop a narrow pit in which to lie while the sun is blaring down.

The utmost shade will be obtained if this trench extends East and West. Two or 3 feet of depth can result in as much as 30 degree or more difference in temperature between

its shadowy bottom and ground level.

Before you take such refuge, you should leave some sign of your presence in case help passes near by. Weighting a shirt over one of the excavated piles may serve this purpose.

WHEN WATER IS REPLENISHED

When water has missed for a long while, you MUST NOT DRINK A GREAT DEAL AT ONCE; once you find it. It will cause nausea beside the body will not retain it, thus wasting much of it later.

MISCELLANEOUS TIPS

WATER FROM AN OLD HAND PUMP

Many of us have seen those old water hand pumps but few of us REMEMBER or know how to make them pumping water.

Before one starts to pump himself crazy and not get any water, remember that water MUST be added to the upper cup at the base of the crank.

The reason is simple. The addition of a cup or two of water will create the suction needed to pump the water. If you don't add this water, you will pump air and think there is no water underground which would be false.

Every morning or after a couple days without use, this same process must be repeated in order to create the vacuum. So better leave a jug nearby which contains enough water to get the machine going. This might sound silly or childish to say such a thing but one would be surprised how few of us know this tip.

WATER PRESERVATION AT SEA TIPS

Precautions to take to save your body fluids are equally important as your necessity to drink water.

1) If you don't have water to drink, don't eat. Food needs water to be digested, especially protein.

2) In hot countries, avoid sweating as much as possible so you will avoid losing body water faster.

3) Dampen your clothes in the sea, wring them and wear them. Take advantage of any cooling wind. If your body is covered with a salt crust, remove it with a cloth.

4) Stay in the shadows as much as possible.

5) Sleep and rest as much as you can. You will reduce to a minimum the loss of body fluid.

6) Prevent if you can sea sickness; there are pills for it.

7) Don't drink any alcohol, for it increases the dehydration process.

8) If you smoke, you will increase your thirst. If you must smoke, make it in the evening or at night.

9) To remove the thirst temptation, suck on a button, it will make you salivate more.

FINDING WATER

There are no handy kitchen faucets in the wilds---except in the larger campgrounds with their trailers and recreation vehicles bumper to bumper, and six-man tents guy line to guy line. If you're not in one of these, and don't happen to be hiking along the course of a river or canoeing over chains of lakes, where do you find water?

Your map will help if it's detailed enough. Almost any water source of any size, including annual spring freshets, will be marked on a geodetic map. Even so, it's a good idea to be aware where water is most likely to be found, in case you left the map at the last log rest stop. Besides, knowing nature, being familiar with its habits, gives you a real sense of understanding and accomplishment that is very much a part of the joy of camping.

In mountainous and forest regions such as Eastern and Western Canada, and the United States, and most of Northern Europe, water rarely presents a problem. Almost any downhill country, be it a long slow valley or a deep gorge, will lead to it. These natural formations developed through water erosion and the sculpture tells the tale.

As you walk, keep your eyes open for a change not only in terrain but in vegetation as well. If you see a crooked line of Willows or Willow like trees in the distance, IT'S ALMOST A SURE BET YOU'LL FIND A STREAM WHEN YOU GET THERE.

The mountain ahead is bare, with no water or greenery in sight. One side comes down

steeply to a heavy rock formation; the other side slopes gently down to a valley and gently up to another mountain. Head for the sloping side rather than the steep escarpment. It has a much slower run off larger surface area, and thus a greater likelihood of retained water.

COTTONWOODS

In arid country, cottonwoods serve much the same purpose as willows in country more hospitable.

A chain of cottonwood indicates a river bed. Whether that bed turns out to be wet or dry is another question. But if its dry, examine the ground by one of the largest and most ancient of the cottonwoods. On the inside bank of the old river's curve, you will usually fund a small pool of water. At least there should be enough ground moisture so if you really need water you can dig down a foot or so and find seepage.

REMEMBER THOUGH IT DOES NOT USUALLY PAY TO DIG FOR WATER.

With the amount of energy used, the moisture lost in sweat usually far exceeds that gained from the hole you have dug.

ANY LUSH VEGETATION IN ARID TERRAIN INDICATES WATER IN ONE FORM OR ANOTHER. Birds such as Doves or Blackbirds, in flocks on the ground or quail in any quantity, are other signs of a water source nearby.

You will need 2 quarts (2 liters) a day under average conditions but in the desert or during periods of heavy activity, this raises to 4 quarts (4 liters) or more per person per day.

IF WATER BY THE BARREL

If water is plentiful, as well as wood, MAKE SURE YOU ALWAYS HAVE SOME HOT WATER boiling or close to the flame to keep it hot. REMEMBER, to sterilize water, it takes 10 minutes boiling no matter what some may say. Be safe.

THIRSTY

Drink when thirsty often and in small amounts. DON'T ATTEMPT TO RATION LIMITED QUANTITY OF WATER, LIFE WILL NOT BE PROLONGED. DON'T gulp water, swish first mouthful around mouth, swallow slowly, otherwise you will be sick and vomit this precious water.

Avoid unnecessary activities that cause perspiration. Seek shade. The less you perspire, the longer you'll live without water.

SURVIVAL TIME CHART NO WATER

Some examples of expected survival times are: Fahrenheit 50 F. temperature without water, with minimum exertion- life expectancy is 14 days, with 1 gallon = 16 days. 120.F. Under same conditions = 3 days with 1 gallon = 4 days.

Those are rough estimates for adults. For children and sick folks, the estimate is about 1/3 less. As you see, water is more important than food. Limit food and salt intake when water is limited, especially protein foods which absorb much more water from your body.

FINDING WATER and PURIFYING

Under hot, dry conditions where little possibility of finding water exists, the search for water will cause greater fluid loss than amount of water found. It is best to stay in shade, move as little as possible and wait for help.

BACK